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**Abstract:** In maize-wheat system, crops are grown by thoroughly tilling the field to obtain high yield in conventional tillage practices. Operational energy and the cost of cultivation is higher in conventional tillage system production than in reduced tillage (Singh et al. 2009). Conservation agriculture based technologies have proved to produce more at less cost. In recent years, site specific nutrient management is gaining more attention to obtain higher yields. Keeping this in view an experiment entitled “Conservation Agriculture based Management in Maize-Wheat Cropping System” was carried out in Alfisol under sub humid agro-climatic condition at Rice Research Farm, BAU, Kanke, Ranchi (Jharkhand) during 2011-2012. Soil of the experimental plot was Sandy loam with pH 5.6 having available N, P & K (253.42, 19.12, 215 kg/ha). In kharif 2011, maize hybrid HQPM-1 was sown at a spacing of 70 x 20 cm and in rabi 2011-12, wheat var. BAZZ at 25cm. The Recommended Dose of fertilizer @ 120: 60:40 kg/ha N:P:K for both crops, SSNM @ 208: 107: 86 kg/ha N:P:K in maize & SSNM @ 196: 123: 85 kg/ha N:P:K in wheat was applied as per recommended splits. In order to find out a suitable tillage practice and nutrient level, the present investigation was conducted under Split Plot Design replicated thrice with five tillage practices in the main plot (T1- Conventional tillage, T2- Permanent Wide Bed with residue, T3- Permanent wide bed without residue, T4- No-till with residue, T5- No till without residue) and three nutrient levels in the sub plot (F1- Recommended Dose of fertilizer, F2- SSNM- 2 N splits @ 80% basal+20% top dressing, F3- SSNM-3 N splits @ 1/3rd+1/3rd+1/3rd). Results revealed that permanent wide bed with residue recorded significantly higher vegetative growth characters of maize hybrid HQPM-1 and wheat variety Bazz namely dry matter production (573.54, 191.18 g / m row length) and LAI (4.52, 2.17) as compared to no-till or conventional tillage, respectively. In wheat maximum number of total tillers/m<sup>2</sup> (530.11) was also recorded with permanent wide bed with residue. Plant height did not differ significantly due to tillage practices in maize but significant difference was observed in wheat. Significantly higher grain yield (65.71, 42.39 q/ha) and straw yield (92, 60.53 q/ha) were recorded with permanent wide bed with residue and lowest was obtained with no-till without residue in maize and wheat, respectively. Tillage practices did not influence yield attributes of maize significantly. However, in wheat no. of filled grains/earhead (50), 1000 grain weight (40.54 g) and no. of effective tillers/ m<sup>2</sup> (510) differed significantly due to permanent wide bed with residue. Total nutrient uptake (kg/ha) of N (241.66, 136.41), P (14.88, 20.26) and K (170.52, 117.43) was significantly higher with permanent wide bed with residue in both maize and wheat crop, respectively. Among various nutrient levels, SSNM- 3 splits recorded significantly higher vegetative characters of maize and wheat namely dry matter production (522.54, 174.18 g/m row length) and LAI (4.37, 2.21) as compared to SSNM-2 splits and recommended dose. In wheat maximum tillers/m<sup>2</sup> (505) was recorded with SSNM-3 splits. Plant height differed significantly due to nutrient levels in maize and wheat (234.8,101.7), respectively. Nutrient levels did not influence yield attributes of maize significantly. However, in wheat no. of filled grains/earhead (51.41) and effective tillers/m<sup>2</sup> (485.07) differed significantly due to SSNM-3 splits. Significantly higher grain yield (64.88, 40.51 q/ha) and straw yield (90.80, 54.87 q/ha) were recorded with SSNM-3 splits and lowest yield was obtained with recommended dose in maize and wheat, respectively. Total uptake (kg /ha) of N (240.56, 126.78), P (14.94, 19.14) and K (156.78, 111.79) was significantly higher with SSNM-3 splits in maize and wheat, respectively. Results in respect to maize-wheat system revealed that permanent wide bed with residue recorded significantly higher system yield (118.7 q/ha), gross return (Rs140011/ha), net return (Rs 90978/ha) and B:C ratio (1.85). Also the total nutrient uptake by the system was observed significantly higher with Permanent wide bed with residue (N- 378.86, P- 35.14, K- 260.95). Among various nutrient levels, SSNM-3 splits recorded significantly higher system yield (115.51 q/ha), gross return (Rs 135581/ha), net return (Rs 86314 /q) and B:C ratio (1.75). Total nutrient uptake (kg/ha) was also significantly higher in SSNM-3 splits (N-367.35, P-34.09, K-268.57 kg/ha). Hence, on the basis of the experiment, it can be concluded that: The tillage practice, permanent wide bed with residue is economical for obtaining higher system yield (118.70 q/ha), net return (Rs 90978 /ha) and B:C ratio (1.85) and the nutrient level SSNM- 3 split is economical for obtaining higher system yield (115.51 q/ha), net return (Rs 86315/q) and B:C ratio (1.75) under conservation agriculture based management in maizewheat system. Interaction of tillage practices and nutrient levels was not found significant throughout the crop growth period. Since it was the first year of the investigation, no residue was applied in case of maize. Therefore there was no effect of residue on maize. In wheat, though maize residue was retained, no significant effect was observed as it was the first year of residue application.

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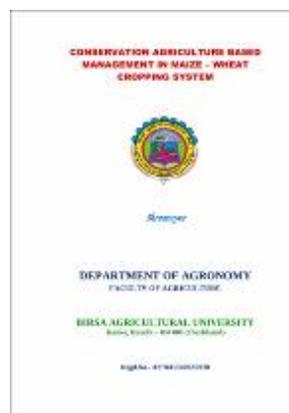
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